

UC-NRLF



B 3 319 779

QL
683
S8

1908

LIBRARY
OF THE
UNIVERSITY OF CALIFORNIA.

GIFT OF

C. A. Robbins

BIOLOGY
LIBRARY
G

Class

A Guide
to
The Birds of the Pacific
Coast





A Guide
TO
The Birds of the Pacific
Coast

BY
C. A. Strehms

Supervisor of Nature Study, Training School
Chico State Normal School
Chico, Calif.

PUBLICATIONS *of* THE STATE NORMAL SCHOOL
CHICO, CALIFORNIA, OCTOBER, 1908
BULLETIN NUMBER TWO



INTRODUCTION

Q160
S8
BIOLOGY
LIBRARY
G



THE dead body of a California woodpecker with the bruised form showing only too plainly the work of the small boy and his dangerous slingshot caused us to look into the ways and means of handling such ever-occurring incidents. A prominent attorney was consulted, and he remarked, "Of course if meadowlarks and woodpeckers are killed, no one should care," whereupon we tried to show him his error.

The ignorance regarding the economic value of our songsters is woefully manifest. Selfish and faulty observation condemns many birds unjustly. Unfortunately and unlike other animals, what little harm our birds do is done noisily, while the good, results from quiet, busy work.

We are prone to have abnormally sharp eyes when touched in a selfish way, but dull eyes when we are losing nothing. The opened eyes of the farmer see the meadow larks gather a few grains during the seeding season, but fail to see the same birds working in the field, day after day eating grasshopper after grasshopper, during the other seasons of the year, and the birds are condemned to the rifle. The selfish eye sees the woodpecker peck a hole in the barn, but fails to notice the disappearing codling moths and other destructive insects.

The problem of arousing interest in bird life with the subsequent change of a biased view is a large one, but can be solved if the school children will help.

There are too many courses of study in the general school system that seize the child on his first day at school, place him in a schoolroom high chair, and feed him ever after on books. All roads lead to the high chair. The schools should not wean the child from all large, active things, but rather should center or focus such upon the child continuously.

The aim of this booklet and supplement is to create an interest in birds, toward the end of their protection, and to bring the children from the schoolroom to the living outdoors.

Why Birds Should Be Protected

Do you know of anything that combines such joyous qualities, such delicate and gorgeous colors—Nature has drawn most lavishly from her experimenting palette, the twilight sky—such grace in movement, and such gift of song as do the birds?

If you were one of these "sky gems" sitting in the morning light, singing to your mate, and she secure in your love, answering in sweet bird talk, when suddenly into this beautiful world should come the dreaded "crack," and your mate with eyes full of agony should fall

from the nest, would you not fly and fly until you dropped from exhaustion, for nothing would matter now?

Can you solve the following problems? "Suppose there are 50 apples in a peck; how many might a codling moth spoil if she lay 50 eggs on as many apples, and half of these eggs hatch female moths, and in the second brood again, each lay 50 eggs on as many apples?"

Ans.—26 pecks.

"If a Downy Woodpecker eats only one codling moth larva each day from November to April inclusive, 180 days, what might be the value of its work to an orchard if apples are worth 50 cents a bushel?"

Ans.—\$585.

It has been estimated that the damage caused annually in three states alone by the codling moth amounts to nearly \$8,000,000. The moth spoils from 25 to 75 per cent of the apple crop of the United States and Canada each year.

Statistics from the United States Department of Agriculture for 1904 show a tax of \$1,195,000,000 imposed upon the people of the United States by insects during that year.

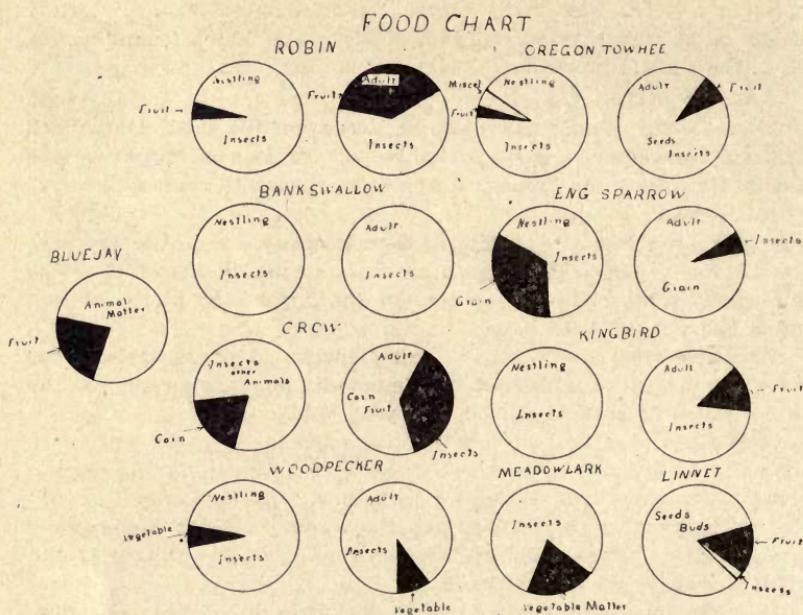
"Certain moths deposit hundreds of eggs in a season and were each egg to hatch and each insect to come to maturity and go on producing at the same rate the entire earth in a few years would be carpeted with crawling caterpillars and the moths in flight would cover the earth like a blanket or fog," and in four years the foliage of the United States would be destroyed.

In giving a description of conditions after a volcanic eruption, which occurred in Guatemala, a coffee planted said: "One of our greatest troubles was that of sickness, owing to the balance of nature having been upset by the eruption, which, having killed all the birds for some hundreds of miles, enabled the flies, mosquitoes and rats to multiply to such an extent that life to man became nearly unbearable. The immediate consequence was an epidemic of malaria, which cost more lives than the eruption itself—many times more. It has passed away, happily; the birds having come again, the breeding of these pests is checked, and the district again enjoys the excellent reputation for health that it deservedly had before."

Authorities have observed one pair of grosbeaks feed their young in one day of eleven hours, 800 larvae of insects. Three thousand ants have been found in the stomach of a "flicker" at one time. Five hundred mosquitoes were counted in the stomach of a nighthawk. A pair of nesting wrens took more than 600 insects from a garden in one day. Swallows eat more than 1,000 flies a day. The stomach of a quail held 100 potato beetles. Another had eaten 500 chinch bugs.

Bird authorities of Massachusetts estimate one day's work by the birds in that state to be the destruction of 21,000 bushels of insects. In Nebraska 170 carloads of insects are destroyed each day. While thousands of insects are destroyed through other natural agencies, just think for a moment of the number of insects all the birds in the whole United States might destroy in one day and in one year.

This chart shows the proportional amount of food the different birds eat.



How to Protect the Birds

Build bird houses, report any violations of the bird laws, watch the cats, punish the blue jays and other harmful birds as the law punishes human beings that take life, never put out poison, arrange drinking and bathing places, girls should never wear birds in their hats, never aid in long imprisonment of wild birds.

How to Study the Birds

First learn this quotation: "A bird in the heart is worth more than a hundred in a notebook." Second: Learn repose. Third: Learn to listen. Fourth: Learn to see.

To study birds most successfully proceed to a spot frequented by birds with your notebook and if possible a good binocular field glass (eight to ten diameters). Sit quietly and patiently and you will be rewarded by some shy but curious friend. Raise your glasses slowly and take a detailed description, following the notebook outline given in the supplement (a sample of the supplement is shown in appendix). Having obtained this, open this booklet to the color and size key—we shall suppose that you have seen unknowingly the Steller's Jay—and

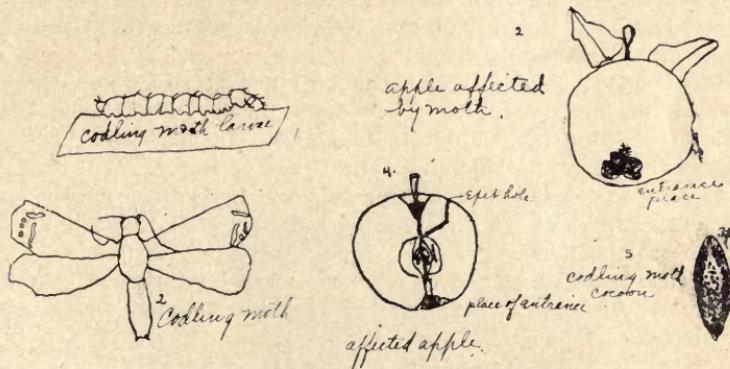
look for "Birds Having Blue Markings." Then look under sizes for birds larger than the robin, turn to the index, locate, and read the descriptions of the birds, and you are formally introduced to the new friend.

As opportunities offer, complete the study as suggested in the separate supplement.

One of the greatest pleasures the birds may offer you is through their songs, so learn to listen for and recognize the birds' voices at all times, whether bird-hunting or at work. Whenever a new note is heard, trace it to its maker. Accurate recognition is often dependent upon the bird's song or call. If you are musically inclined, place their songs to notes and try imitating their songs on musical instruments.

Learn to see correctly and to interpret wisely. Many see the apple pecked and the wheat kernel disappear, but do not see the quick efforts of the same birds which mean the death of a codling moth larva (the small "worm" found in apples) or a grasshopper. Cultivate sharp eyes for the good work done as well as for the evil and you will have a good basis for economic judgment.

Life History of the Codling Moth.



From drawings made by pupils.

Some Bird Laws

Federal laws: "The importation of the English sparrow and other injurious birds—is prohibited."

All hunting or killing, etc., in the Mount Rainier and the Yellowstone National parks is prohibited.

State laws: All wild birds, excepting the Cooper's Hawk, the Sharp-shinned Hawk, the Duck Hawk, the Great Horned Owl, the Blue Jay, the Linnet, and the English Sparrow are protected.

Any person who in the State of California, "shall at any time hunt, shoot, shoot at, pursue, take, kill, or destroy, buy, sell, give away, or have in his possession—except those above mentioned—or shall rob the nest, or take, sell or offer for sale, or destroy the eggs of any wild bird, other than those above named, is guilty of a misdemeanor" and is

liable to a heavy fine or imprisonment. Game birds are not included under this head, but are protected by the game laws.

Severe penalties are imposed for taking the eggs of quail and other game birds.

The fine for killing a Blue Crane is not less than fifty dollars and possible imprisonment of not less than fifty days.

Game Laws.

Duck.—Open season, October 1st to February 15th. Bag limit, per day, 35.

Wilson Snipe.—Open season, October 15th to April 1st. Bag limit, 25 per day.

Valley Quail, Partridge, Rail, Curlew, Ibis, Plover or other Shore Birds.—Open season, October 15th to February 15th. Bag limit, per day, 25.

Dove.—Open season, July 15th to October 15th. Bag limit, per day, 25.

Grouse or Sage Hens.—Closed season until September 1st, 1909.

Swan, Pheasant, Bob White, Imported Quail.—Unlawful to kill or to have in possession at any time.

Mountain Quail.—Open season, September 1st to February 15th.

Meadow Lark, Robin and other Wild Birds.—Unlawful at any time to take or kill.

Birds not protected.—Which can be killed at any time. English Sparrow, Sharp Shinned Hawk, Cooper's Hawk, Duck Hawk, Great Horned Owl, Blue Jay, California Linnet and all fish-eating birds except Sea Gulls and the blue and white Crane or Heron.

License to Hunt.—On and after July 1st, 1907, every person must have a license who hunts, pursues, or kills any of the wild birds and animals protected by law.

License must be carried at all times when hunting, and exhibited to officers. License can be procured from the County Clerk or Fish Commission.

License Fee Per Annum.

To residents of California, who are citizens of the United States....\$ 1.00

To non-residents of California, who are citizens of the United

States 10.00

To persons not citizens of the United States..... 25.00

Any person can hunt on his own land without a license.

Fine for violation of Game Laws: \$25 to \$500 and imprisonment.

Thanks are due Dr. B. M. Davis, Miss M. Crouch, the Audubon Society of California, and Chapman's "Key to North American Birds" for many suggestions.

Chapman's "Color Key to North American Birds," Bailey's "Hand-Book of North American Birds," and Lord's "First Book Upon the Birds of Oregon and Washington" are recommended for further reference.



BIRD GUIDE

Red-shafted Flicker—Larger than robin; crown brownish; back barred with black; throat bluish gray; lining of wings and tail reddish; large black crescent on a spotted breast; large white spot on rump.

California Woodpecker—About the size of the robin; crown red; sides of head and upper parts black; rump and wing patches white; breast with black band; at rest the bird presents a mass of black with a red cap, in flight one sees bars of black and white.



Gairdner Woodpecker—Size of the English sparrow. Upper parts black, marked with white; forehead white; white patch down back and rump; outer tail feathers white, barred with black; crown with red stripe or crescent.

Harris Woodpecker—Not quite so large as the robin; upper parts black, with scarlet nape; white patch down back; wing black, or possibly lightly marked with white; outer tail feathers plain white; under parts dingy gray.

Willow Woodpecker—Similar to Gairdner woodpecker, but smaller; tertails always more or less spotted with white.

Red-breasted Sapsucker—Not quite so large as the robin; crown, head, nape, throat and breast dull red; back, wings and tail black marked with white; abdomen yellowish.

Nuttall Woodpecker—Smaller than robin; nape red; back barred with black and white; under parts a soiled white; sides spotted with black. The convict stripes on back make the bird easily recognized.

Climbers, Not Woodpeckers.

Slender-billed Nuthatch—About the size of the English sparrow; back of head and nape banded with a wide black stripe; back and shoulders grayish; white bars on wings; outer tail feathers white; breast light gray. He runs up and down the tree trunk regardless of position.

Red-breasted Nuthatch—Smaller than English sparrow. Head and neck black; white stripe passing through and over the eye to the shoulder; upper parts bluish gray; tail, dark with white on tips of outer tail of feathers; below, reddish-brown. Call, a drawn-out nasal "Yna, yna."

California Creeper—Smaller than English sparrow; head and upper parts generally rusty brown, becoming brighter at rump; long curved bill; under parts white. He climbs persistently in a spiral about limbs and branches. The tail feathers are stiffened and pointed to assist his creeping.

Sierra Creeper—Smaller than English sparrow. As its name signifies it is a mountain resident. Similar to California creeper, but colors are darker.

Louisiana Tanager—Smaller than robin; head, nape and throat reddish; wings black with yellowish bar; tail black; rest of body yellow. These birds are numerous during the fruit season.

Northwestern Red-wing—Size of robin; shoulders tipped with scarlet and white; the rest of the body is black.

Bicolored Blackbird—Similar to Northwestern red-wing, but shoulders are tipped with scarlet, scarlet only, thus giving the bird its name—two-colored bird.



Housefinch or Linnet

House Finch or Linnet—About size of English sparrow; upper parts brownish and white marked; head, throat and shoulders sprinkled with red; under parts white streaked with red. The linnet is sociable and seeks his home place near dwellings.

California Jay—Larger than robin; upper parts blue, middle of back grayish brown, under parts a dirty white, except a blue band on breast, white line over the eye.

Steller's Jay—Larger than robin; fore part of body bluish black, rear part bluish; indefinite white stripes on forehead. The bird has a striking dark blue crest which he lowers during flight.

Western Bluebird—Smaller than robin. Upper parts bright blue with indefinite rusty markings on foreback; throat blue, breast rusty brown, abdomen gray.

Lazuli Bunting—Smaller than English sparrow; throat, head, and other upper parts blue, wings and tail black, breast banded with brown, under parts white, wings barred with white.

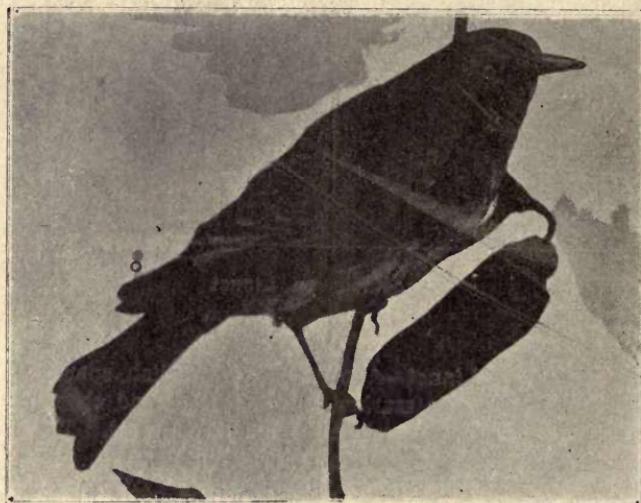
Belted Kingfisher—Larger than robin; bluish above, banded with fine white lines; head large and crested; chin, throat, and band around the neck white; band on breast blue; abdomen a beautiful soft white shaded into brown on the lower part of breast.

Summer or Yellow Warbler—Smaller than English sparrow; upper parts yellow, tinged with olive green; under parts lighter yellow.

Calaveras Warbler—Back olive, green running to yellow on rump; throat and breast bright yellow; head and cheeks bluish gray with chocolate crown patch; song something like the chipping sparrows.

Western Yellow-throat—Forehead and cheeks black, back olive-green; throat and breast a rich yellow; black mask bordered with white. He is a shy songster and frequents the banks of creeks and marshes.

Lawrence Goldfinch—Smaller than English sparrow. Crown, throat and front of cheeks black; body gray; back gray and yellow; outer tail feathers with white spots near the end.



Audubon Warbler

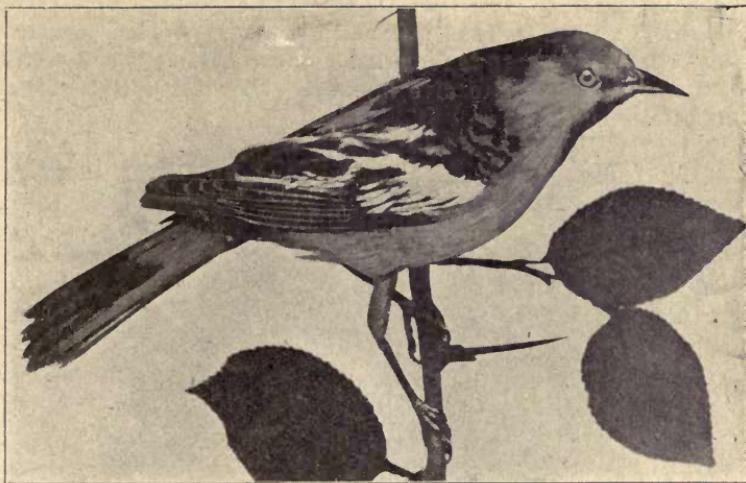
Audubon Warbler—Smaller than English sparrow; crown, rump, shoulders and throat yellow; back blue-gray, streaked with black; wing-bars white; breast light, marked with black.

Willow or California Goldfinch—Smaller than English sparrow; crown, wings and tail black; tail and wings marked with white; back and under parts yellow.

Arkansas Goldfinch—Similar to willow goldfinch, but back is tinged with dark green and the yellow is not so bright.

Ruby-crowned Kinglet—Smaller than English sparrow; upper parts grayish olive; red crown patch; white ring around small black eyes; under parts gray tinged with yellow; crown patch sometimes undistinguishable.

Western Golden-crowned Kinglet—Smaller than English sparrow; upper parts olive green; crown yellow; under parts whitish tinged with brown; white line over the eye.



Bullocks Oriole

Bullock Oriole—Smaller than robin; cheeks, line over eye, and most of under parts orange running to yellow on rump and outer tail feathers; center of throat, top of head, forehead, and wings black; wings and tail marked with white.

Western Evening Grosbeak—Smaller than robin; all parts brownish yellow except black tail and wings; large white wing patches; forehead yellow; large stubby bill.

Western Meadowlark—About size of robin; upperparts black, mottled with chestnut and buff; under parts yellow with black crescent on breast; white bars on wings.

Arkansas Kingbird—Smaller than robin; throat white, running to yellow on stomach and under tail. Upper parts dark gray. Crown patch orange; outer part of outer tail feathers white; tail feathers cut straight across. Often seen chasing other birds such as jays and hawks.

Long-tailed Chat—Larger than English sparrow; upper parts olive gray; head dark with white line over the eyes; breast and throat a beautiful rich yellow; abdomen white; tail somewhat longer than ordinary; has several individual calls.

Bohemian Waxwing—Smaller than robin; body soft fawn color; rump and tail grayish; throat and eye stripe black; tail tipped with yellow; wings marked with a few red spots; abdomen grayish; crested.

Cedar Waxwing—Smaller than robin; similar to above, but abdomen yellowish, not quite so much white on wings.

Water Ouzel or American Dipper—Little larger than sparrow; slate-color with brown head and neck; frequents water, particularly rapids or falls. His song is remarkably sweet and lively, and he never hesitates when singing to dive into the water and swim away at a lively rate.



California Towhee

California Towhee—About the size of a robin; body generally dark brown all over except red under tail feathers. Scratches for its food and lives near the ground; tail unusually long.

Black-headed Grosbeak—Smaller than robin; head black; neck, lower back, breast, and abdomen orange; center of abdomen yellowish; white patches on black wings; large stubby bill; splendid songster.

Female—Head marked with white bars; color less bright.

Western Blue Grosbeak—Smaller than robin; body bright blue; darker on back; shoulders tipped with chestnut; large stubby bill.

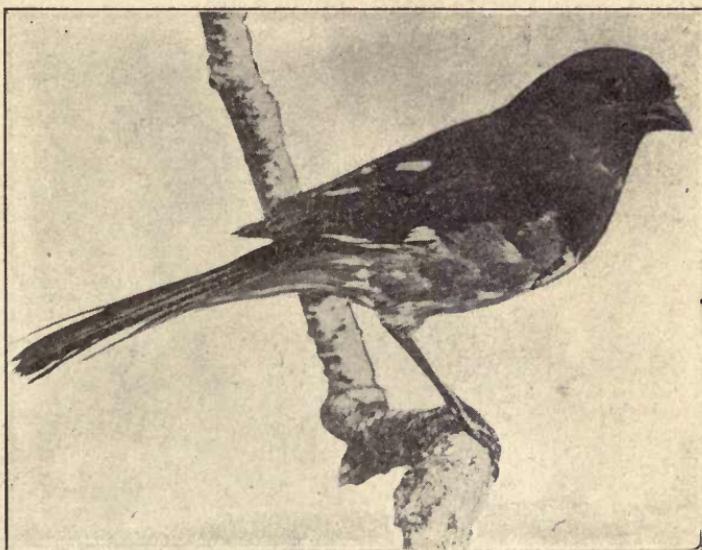
American Crow—Larger than robin; whole bird glossy black.

Yellow-billed Magpie—Larger than robin; wings, tail, and most of body black; shoulders and stomach white, bill yellow.

Brewer Blackbird—Smaller than robin; whole plumage glossy black; usually found in flocks.

Western Black Phoebe—Smaller than robin; breast and head black; back grayer; rear abdomen and under tail-coverts white; head sometimes seems crested, but is not. Frequents water and bridges. Long, slender bill.

Oregon Towhee—Smaller than robin; head, shoulders, and throat inky black; wings black, marked with white; tail black with white thumb marks on outer tail feathers; sides brownish; abdomen white. Is usually found on the ground scratching for its food.



Oregon Towhee

Cassin Vireo—Smaller than sparrow; upper parts gray, under parts white; sides slightly tinged with greenish yellow; white lores and ring around eyes; two white wing bars.

Hutton Vireo—Smaller than sparrow; upper parts dusky olive green; under parts grayish white, with a yellow tinge; eye ring conspicuous; white line over the eye.

California Shrike—Smaller than robin; under parts white; rump and upper tail-coverts paler; wings and tail black marked with white; bill slightly hooked.

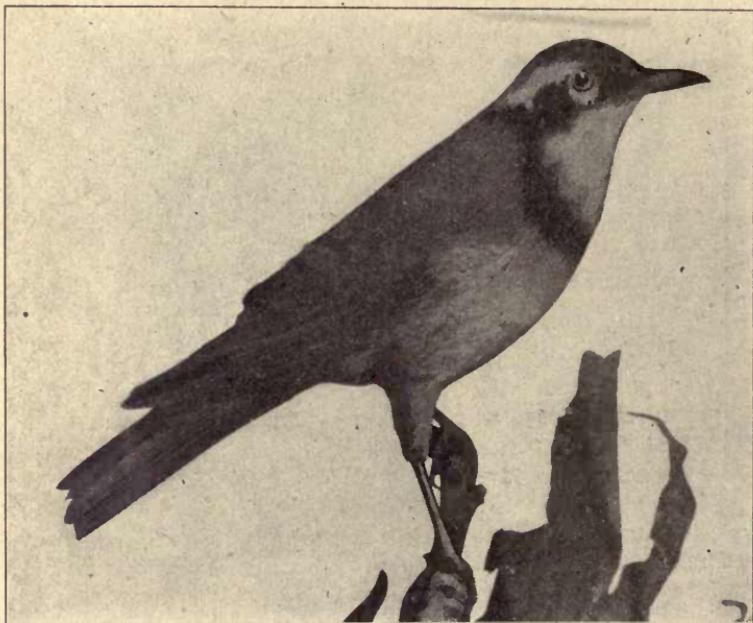
Plain Titmouse—Smaller than sparrow; upper parts olive gray; under parts running to white on abdomen; head crested.

Oregon Junco—Sparrow size; head, neck, throat, and foreback black; back dark brown; abdomen white; outer tail feathers white; bill usually yellow.

Mourning Dove—Larger than robin; upper parts brownish; back and wings marked with black spots; top of head gray; under parts brown tinged with pink on breast; outer tail feathers slate color; tail long and rounded. Flies with peculiar musical noise.

Ash-throated Flycatcher—Size of robin; back grayish brown, outer web of outer tail feathers whitish; throat and breast ashy gray; feathers rough on head, giving the appearance of a crest.

Varied Thrush—About size of robin; similar to robin generally, but with black breast band; rusty brown line over each eye; breast not so reddish; call, a mournful whistle.



Varied Thrush

Pipit or American Tit-lark—Sparrow size; upper parts grayish brown, somewhat streaked; under parts buff, breast with indefinite black collar. After lighting titters up and down. Has a soft dee-dee in flight.

Western Gnatcatcher—Smaller than sparrow; upper parts bluish gray; under parts grayish white; outer tail feathers white.

Parkman Wren—Smaller than sparrow; upper parts brown; all but head streaked with dusky lines; under parts buffy; tail held pertly in the air.

Tule Wren—Smaller than sparrow; crown and forehead black; forehead streaked; white streak over eye; rump brown; under parts brownish white; outer tail feathers dark.

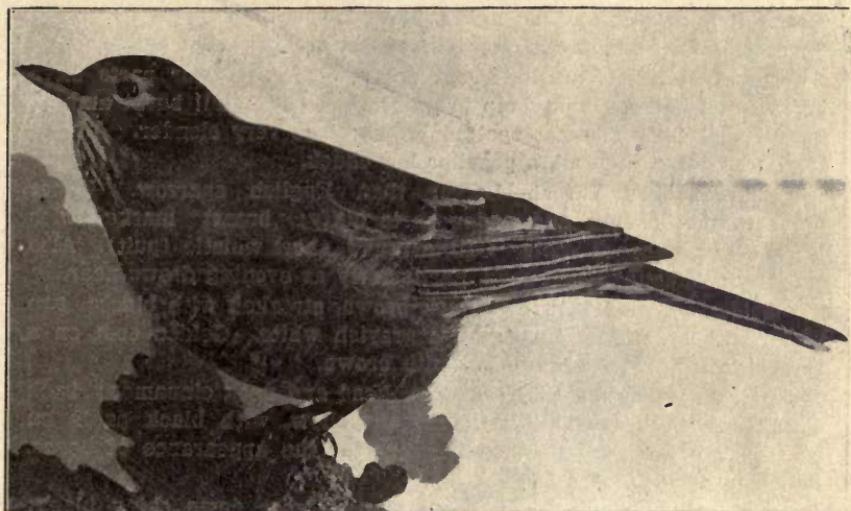
Northwestern Vigor's Wren—Smaller than sparrow; similar to Parkman Wren, but with a white line over the eye.

California Thrasher—Larger than robin; upper parts grayish brown; abdomen buff; breast gray; white throat; long curved bill.

Coast Wren-tit—Little larger than English sparrow; upper parts brownish, under parts pinkish, streaked with gray; sides and back dark.

Western House Wren—Smaller than English sparrow; upper parts grayish cinnamon brown; under parts grayish tinged with brown; back barred; tail held at an abrupt angle with body; call, a scolding ker-ring.

English Sparrow—Throat and upper breast black; crown gray; band behind eye and on nape brown. Under parts dirty white; back wings and rump brown streaked with black. Black patch on breast very distinct.



Western Robin

Western Robin—Head dark; upper parts slate gray; wings and tail darker; breast rust-brown; abdomen white. Found usually feeding near the ground.

Western Chipping Sparrow—Smaller than English sparrow; under parts streaked gray, brown streak on head; light under parts.

Heerman Song Sparrow—Size English sparrow. Above brownish olive-gray with distinct black streaks; tail without a decided rufous tinge; black and brown stripes below radiating from throat.

San Diego Sparrow—Similar to Heerman song sparrow, but lighter and smaller.

Thick-billed Sparrow—Larger than English sparrow. Above and spots below brownish gray; wings and tail brown; bill large.

Western Lark Sparrow—Upper parts brownish gray streaked with black; head and throat marked with black streaks radiating from bill; chestnut patch on side of head; under parts white; black spot on breast.

White-crowned Sparrow—Size, English sparrow. Head black with three white stripes; stripe over eye not reaching bill; upper parts gray, streaked with brown; rump browner; under parts whitish.

Western Tree Sparrow—Sparrow size. Upper parts rufous, also space between eyes on the head; middle of back buffy streaked with black and red; white bars on wings; under parts light; small dark spot on breast often indefinite.

California Bush-Tit—Smaller than sparrow. Back grayish brown; crown lighter; under parts paler. The Bush-Tit builds its nest low in trees. It is a long, pendent affair, much larger than seems necessary for so small a bird. He is our most expert architect and builder.

Dwarf Hermit Thrush—About sparrow size. Upper parts olive brown; top of head and rump browner than back; tail burnt amber; under parts buffy; breast spotted brown; legs very slender. A very tidy, graceful bird. Call, a peculiar low chuck.

Russet-backed Thrush—Larger than English sparrow. Upper parts rufous; cheeks and under parts buffy; breast marked with brown, wedge-shaped spots. Call, a round, short whistle (puit). Also sings a melodious thrush song, particularly as evening draws near.

Golden-crowned Sparrow—Back brown, streaked with black; two white bars on wings; under parts grayish white. Golden spot on a rather dark head; breast tinged with brown.

California Horned Lark—Back of head and neck cinnamon; back streaked with brownish black; throat yellow, with black patch on breast; two erect feathers on head give the appearance of horns. Found in open fields.

Western Martin—Nearly robin size. Upper parts shiny black; under parts somewhat lighter. Builds nest in trunks of trees and eaves of buildings.

Barn Swallow—Larger than English sparrow. Upper parts blue-black, forehead chestnut; chin and throat chestnut; abdomen whitish; tail forked. Builds nest under eaves of buildings.

Cliff Swallow—Smaller than barn swallow. Upper parts black; back streaked with white; throat, forehead and rump brownish; abdomen light; tail not forked to any extent. Builds in cliffs.

Tree Swallow—About size of English sparrow. Upper parts metallic blue or green; under parts white; tail slightly forked. Builds nests in holes of trees.

➤ **Bank Swallow**—Smaller than English sparrow. Under parts white, grayish-brown band across breast; upper parts olive brown.

Anna Hummingbird—Much smaller than English sparrow. Upper parts glistening green; crown and throat shiny pink; feathers at side of throat lengthened (male); below white and green.

Rufous Hummingbird—Upper parts reddish-brown; upper back sometimes greenish; tail brown with black band at base.

Black-chinned Hummingbird—Upper parts greenish, chin and upper throat black; tail forked, feathers pointed.

California Chickadee—Smaller than English sparrow. Upper parts grayish, tinged with brown; head and throat black; abdomen white; sides slightly tinged with brown.

Lutescent Warbler—Smaller than English sparrow. Upper parts olive green; underparts yellow; wings darker with indications of white.

Traill Flycatcher—Smaller than English sparrow. Upper parts light olive brown or dark gray; under parts grayish; indications of white around eyes.

Western Gull—Larger than crow. Head, neck, tail, and under parts white; back gray; outer parts of wings black; bill long and enlarged near end. Found about San Francisco bay.

Western Nighthawk—Robin size. Upper parts brown, black, and white spots; under parts with same color, but more uniformly arranged; tail slightly forked; bill very short, and broad at base.

Valley Partridge or Quail—Robin size. Upper parts grayish brown; under parts white and black, washed with brown; forehead and throat black with white border. Plume falls forward toward bill.

Mountain Partridge or Quail—Little larger than robin. All of upper parts brownish-gray; throat chestnut with white band; breast grayish; sides and abdomen washed with brown. Plume long and slender, droops toward back.

Turkey Vulture or Turkey Buzzard—Larger than crow. Black all over except head and neck, which are red and unfeathered.



Great Blue Heron

Great Blue Heron—Much larger than crow. Generally blue; center of crown white; crest, legs black, black markings on under parts; neck and legs very long. In flight the neck is doubled.

Sandhill Crane—Much larger than crow. Body brownish-gray; long legs and bill.

Barn Owl or Monkey-faced Owl—Larger than robin. Upper parts grayish-brown spotted; under parts white speckled with brown; large white eye-rings nearly hiding bill; eyes black.

California Pigmy Owl—Smaller than robin; upper parts grayish brown, with rusty spots; top of head spotted.

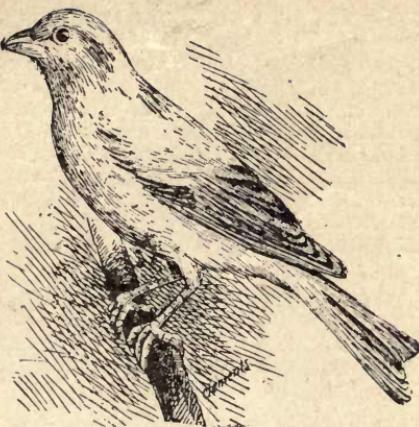
Snowy Owl—Much larger than crow. Body white with some black markings.

Killdeer—Robin size. Rump and upper tail feathers rusty; other upper parts grayish-brown; under parts white with two black bands on breast; white band around neck.

Western Red-tail (Hawk)—Colors vary, usually sooty-brown, and rusty mixed. Tail red with black bars.

Red-bellied Hawk—Upper parts rusty brown; under parts white, washed lightly with brown; breast unbroken brown; under tail whitish marked with black bars.





Color and Size Key

English Sparrow.—Length, 6.3 inches.

Robin.—Length, 10 inches.

Crow.—Length, 19.3 inches.

(R) size of robin; (Rx) larger than robin; (R-) smaller than robin;
 (S) size of sparrow; (Sx) larger than sparrow; (S-) smaller than sparrow;
 (C) size of crow; (Cx) larger than crow; (C-) smaller than crow.

CLIMBERS AND WOODPECKERS. I.

Red-shafted Flicker.....	(Rx)	Red-breasted Sapsucker.....	(R-)
California Woodpecker.....	(R)	Nuttall Woodpecker.....	(R-)
Gairdner Woodpecker	(R-)	Red-breasted Nuthatch.....	(S-)
Harris Woodpecker.....	(R-)	Slender-billed Nuthatch.....	(S)
Willow Woodpecker.....	(R-)	California Creeper.....	(S-)
Sierra Creeper	(S-)		

BIRDS WITH RED MARKINGS.

Not in I.

Louisiana Tanager.....	(Sx)	Bi-colored Blackbird.....	(R)
Northwestern Red-wing.....	(R)	House-Finch	(S)

BIRDS WITH BLUE MARKINGS.

California Jay.....	(Rx)	Western Blue Grosbeak.....	(R-)
Steller Jay	(Rx)	Belted Kingfisher.....	(Rx)
Western Bluebird	(R-)	Great Blue Heron.....	(Cx)
Lazuli Bunting	(S-)		

BIRDS WITH YELLOW OR ORANGE MARKINGS.

Lutescent Warbler	(S-)	Western Golden-crowned Kinglet	(S-)
Yellow Warbler.....	(S-)	Bullock's Oriole.....	(R-)
Calaveras Warbler.....	(S-)	Western Evening Grosbeak.....	(R-)
-Western Yellowthroat.....	(S-)	Arkansas Kingbird.....	(R-)
-Lawrence Goldfinch	(S-)	Long-tailed Chat.....	(R-)
Audubon Warbler.....	(S-)	Bohemian Waxwing	(R-)
Willow Goldfinch.....	(S-)	Cedar Waxwing	(R-)
-Arkansas Goldfinch.....	(S-)	Western Meadowlark.....	(R-)
Ruby-crowned Kinglet.....	(S-)		

BIRDS WITH REDDISH BROWN MARKINGS.

Western Robin.....	(R)	California Towhee.....	(R)
Varied Thrush.....	(R)	Oregon Towhee	(R-)
		Black-headed Grosbeak.....	(R-)

BIRDS WITH BLACK OR BLACK AND WHITE MARKINGS.

American Crow.....	(C)	Western Black Phoebe.....	(R-)
Yellow-billed Magpie.....	(Rx)	Red-winged Blackbird	(R-)
Turkey Vulture.....	(Cx)	Barn Swallow	(R-)
Western Martin.....	(R)	Cliff Swallow	(R-)
Brewer Blackbird.....	(R-)	Tree Swallow	(R-)

BIRDS WITH SLATY OR GRAY MARKINGS.

Cassin's Vireo.....	(S-)	English Sparrow.....	(S)
Chipping Sparrow	(S-)	White-crowned Sparrow.....	(S)
Hutton Vireo.....	(S-)	Oregon Junco	(S)
San Diego Sparrow.....	(S-)	Western Lark Sparrow	(S)
Plain Titmouse.....	(S-)	Pipit	(S)
Trail Flycatcher	(S-)	Heerman Song Sparrow	(S)
Western Gnatcatcher.....	(S-)	Sandhill Crane	(Cx)
California Chickadee.....	(S-)	Mourning Dove	(Rx)
California Shrike.....	(R-)	Western Gull	(C)
Thick-billed Sparrow	(R-)	Snowy Owl	(Cx)
		Ash-throated Flycatcher.....	(R)

BIRDS MARKED CHIEFLY BROWN AND STREAKED

Parkman Wren.....	(S-)	California Horned Lark	(Sx)
Tule Wren	(S-)	California Pigmy Owl.....	(Sx)
Northwestern Vigor's Wren.....	(S-)	Nighthawk	(R)
Western House Wren.....	(S-)	Valley Partridge or Quail.....	(R)
Water Ouzel.....	(S-)	Mountain Partridge	(R)
Bank Swallow	(S-)	Killdeer	(R)
Coast Wren-Tit.....	(S-)	Western Red-tail	(Rx)
Dwarf Hermit Thrush.....	(S)	Red-bellied Hawk	(Rx)
Russet-backed Thrush.....	(Sx)	Barn Owl	(Rx)
Golden-crowned Sparrow.....	(Sx)	Cal. Thrasher	(Rx)

HUMMINGBIRDS.

Anna Hummingbird	(S-)	Rufous Hummingbird	(S-)
		Black-chinned Hummingbird..	(S-)



NOTES

(To be used with bird study outline)

Size.—Compare with English sparrow, robin and crow.

Description.—Follow points as indicated on the cut, giving colors of crown, nape, back, rump, etc., indicating differences between male and female.

Movements.—Hop, run, bob head or tail or both, sit quietly or flit about continuously, nervous or deliberate.

Song.—Harsh, sweet, notes long drawn out or in series, variety of notes, one or more calls, call in flight or at rest or both, what does the bird seems to say in our words.

Flight.—Direct, zigzagging, diving, sailing, undulating, or combinations of these.

Habitat.—Trees (high up or low down), shrubs, ground, buildings, water.

Localities Frequented.—Meadows, forests, orchards, homes, foothills.

Food.—Insects, grain, fruit, seeds, vegetables. (Determine economic value.)

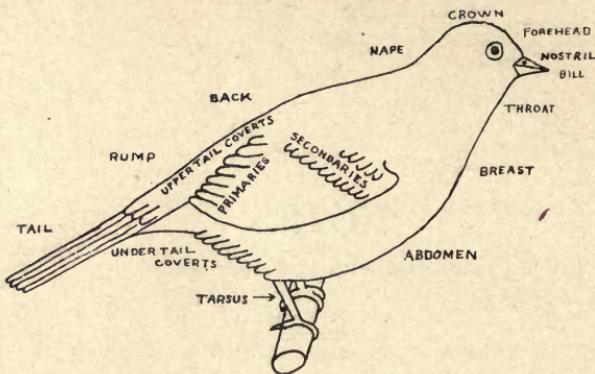
Points Peculiar to This Bird.—Bill short and stubby, seed eater; or long and slender, broad at base, insect eater; or long and very slender, nectar gatherer; or stout and hooked, flesh tearers; or long and chisel-shaped, woodpecker. Feet, wide toes, webbed toes, arrangement, toes for climbing, scratching, perching, or grasping.

Tail.—Feathers stiff and pointed, forked or rounded.

Remarks.—Points not covered by the outline: Striking characteristics in color, habits, food, etc. Birds seen in flocks, pairs, or single; nest building; raising of young; food of nestlings, etc.



Bird Study Outline



Date _____ Size _____

Description: Forehead _____ Crown _____

Nape _____ Back _____ Rump _____

Tail _____ Bill _____ Chin _____

Throat _____ Lores _____

Breast _____ Abdomen _____

Movements _____

Song _____ Flight _____

Habitat _____

Localities Frequent _____

Food _____

Points Peculiar to this Bird _____

This supplement for field study is a separate book containing pages as illustrated here. There is room for the careful study of twenty birds in outline and in drawing. Price 10 cents.

Name of Bird

NOTE.—A crayon drawing or a painting should be made of the bird being studied and pasted lightly to this page. The outline may be traced, but the markings should be taken from the bird in the field.

INDEX

Page	Page		
American Crow.....	12	Oregon Junco	13
Anna Hummingbird	16	Oregon Towhee	13
Arkansas Goldfinch	10	Parkman Wren	14
Arkansas Kingbird	11	Pipit	14
Ash-throated Flycatcher	13	Plain Titmouse	13
Pank Swallow	16	Quail	17
Barn Owl	18	Red-bellied Hawk	18
Barn Swallow	16	Red-breasted Nuthatch	8
Belted Kingfisher	9	Red-breasted Sapsucker	8
Bi-colored Blackbird	8	Red-shafted Flicker	7
Black-chinned Hummingbird	16	Red-winged Blackbird or North- western Red-wing	8
Black-headed Grosbeak	12	Ruby-crowned Kinglet	10
Bohemian Waxwing	11	Rufous Hummingbird	16
Brewer Blackbird	12	Russet-backed Thrush	16
Bullocks Oriole	11	San Diego Sparrow	15
Calaveras Warbler	10	Sandhill Crane	18
California Bush-tit	16	Sierra Creeper	8
California Chickadee	17	Slender-billed Nuthatch	8
California Creeper	8	Snowy Owl	18
California Horned Lark	16	Steller's Jay	9
California Jay	9	Supplementary Pages, Bird Out- line	22-23
California Pigmy Owl	18	Thick-billed Sparrow	15
California Thrasher	14	Trail Flycatcher	17
California Towhee	12	Tree Swallow	16
California Woodpecker	7	Tule Wren	14
Cassin Vireo	13	Turkey Vulture	17
Cedar Waxwing	11	Valley Partridge or Quail	17
Coast Wren-tit	14	Varied Thrush	14
Dwarf Hermit Thrush	16	Water Ouzel	12
English Sparrow	15	Western Black Phoebe	12
Gairdner Woodpecker	8	Western Blue Grosbeak	12
Golden-crowned Sparrow	16	Western Bluebird	9
Great Blue Heron	18	Western Chipping Sparrow	15
Harris Woodpecker	8	Western Evening Grosbeak	11
Heerman Song Sparrow	15	Western Gnatcatcher	14
Housefinch or Linnet	9	Western Golden-crowned Kinglet	10
Hutton Vireo	13	Western Gull	17
Killdeer	18	Western House Wren	15
Lawrence Goldfinch	10	Western Lark Sparrow	15
Lazuli Bunting	9	Western Martin	16
Long-tailed Chat	11	Western Meadowlark	10
Louisiana Tanager	8	Western Red-tail	18
Lutescent Warbler	17	Western Robin	15
Mountain Partridge	17	Western Tree Sparrow	16
Mourning Dove	13	Western Yellow-throat	10
Nighthawk	17	White-crowned Sparrow	11
Northwestern Vigor's Wren	14	Willow Goldfinch	18
Northwestern Red-wing or Red- winged Blackbird	8	Willow Woodpecker	8
Notes, to be used with Supple- mentary Outline	21	Yellow-billed Magpie	12
Nuttall Woodpecker	8	Yellow Warbler	9

THIS BOOK IS DUE ON THE LAST DATE
STAMPED BELOW

AN INITIAL FINE OF 25 CENTS
WILL BE ASSESSED FOR FAILURE TO RETURN
THIS BOOK ON THE DATE DUE. THE PENALTY
WILL INCREASE TO 50 CENTS ON THE FOURTH
DAY AND TO \$1.00 ON THE SEVENTH DAY
OVERDUE

BIOLOGY LIBRARY

NOV 10 1938
APR 24 1939

LD 21-95m-7, '37

9L683

58

Stebbins

BIOLOGY
LIBRARY

G

193444

